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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/424,028	11/16/99	BRIDGHAM	5525-0035.10

022918
IOTA PI LAW GROUP
350 CAMBRIDGE AVENUE SUITE 250
P O BOX 60850
PALO ALTO CA 94306-0850

HM22/0619

EXAMINER
TUNG, J

ART UNIT	PAPER NUMBER
1656	9

DATE MAILED: 06/19/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/424,028

Applicant(s)

Bridgham et al.

Examiner

Joyce Tung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3/6/01
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24, 26-28, and 35 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24, 26-28, and 35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☒ Other: notice to comply sequence rules and error report

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Response to Amendment

1. The amendment filed 3/06/2001 has been entered.
2. The rejection of claims 24-28 under 35 U.S.C. 112, second paragraph is withdrawn because of the amendment.
3. The CRF diskette filed on 3/6/2001 is not fully responsive to the communication mailed 9/14/2000 for the reason(s) set forth on the attached Notice of Comply With the Sequence Rules or CRF Diskette Problem Report.

Since the response appears to be bona fide, but through an apparent oversight or inadvertence failed to provide a complete response, applicant is required to complete the response withing the response period set forth in this Office action.

4. Regarding the rejection of claims 24-27 under 35 U.S.C. §103(a) over Dower, the response argues that Dower et al. neither discloses nor suggests planar arrays of micro particles having polynucleotides attached and this an important element of the instant invention (e.g. the planar configuration of the instant invention permits the simultaneous detection and monitoring of many tens of thousands of optical signals from the polynucleotides attached to different microbeads. However, Dower et al. do disclose the synthesis of peptides on 96 plastic pins which fit the format of standard microtiter plates (See column 2, lines 36-38) and the oligomer on the solid support can be nucleic acid (See column 2, line 50-53). This suggests that the 96 plastic pins which fit the format of standard microtiter plates are planar array. The response further

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argues that Dower et al. teach microparticles in a fluid (not a planar array) and this teaches away from the feature of instant invention. Although, Dower et al. do not teach the microparticle in a fluid (not a planar array), the microparticles are needed to be in a fluid to synthesized oligomer libraries. This suggests that a planar array is in a fluid.

Third, the response argues that Dower discloses synthetic oligonucleotides which is defined in Dower et al. to be in the range of 50-150 nucleotides (See column 5, lines 20-32) and clearly do not contemplate the full range of cDNAs in a typical library. However, the claim language does not define the definition of cDNA and the oligonucleotide is a long chain of a polynucleotide which reads on cDNA.

Finally, the response argues that the instant invention is a flow cell containing an array of microparticles with polynucleotides and 96-well array can not be within the bounds of the instant invention as claimed. Matson et al. disclose that an automated method and apparatus for performing biopolymer synthesis on a two-dimensional support surface whereby a two-dimensional matrix or array of biopolymer are obtained on the surface (See the Abstract). A one-dimensional array of biopolymers is formed on the support and each element of the array contains a population of biopolymers having identical sequence (See the Abstract). The apparatus is also used for DNA synthesis (See column 1, lines 28-34). The disclosure indicates the various modification and improvements may be made (See column 8, lines 20-24). Matson et al. do not disclose a flow chamber used. However, one chamber used has the same physical structure (See column 3, lines 45-60) and function as the flow chamber as described in the specification (See pg.

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6, lines 25-30). Therefore, one of ordinary skill in the art at the time of the instant invention would have been motivated to combine the teachings of Dower et al. and Matson et al. to make the instant invention as claimed with a reasonable expectation of success because Dower et al. disclose that the solid support can be used to produce large synthetic oligomer libraries (See column 3, lines 42-43) and the chamber of Matson et al. has the same physical structure including the inlet and outlet and functions as the flow chamber as described in the specification (See pg. 6, lines 25-30). Matson et al. also indicate that the various modification and improvements may be made (See column 8, lines 20-24). Therefore, using one flow chamber simplifies the manufactory procedure instead of using a plurality of parallel open channel for the same function as taught by Matson et al.. Thus, the rejection is maintained.

5. Claims 24, and 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dower et al. (5,708,153).

Claim 35 is also rejected under 35 U.S.C. 103(a) as being unpatentable over Dower et al. (5,708,153) because the limitation of claim 35 reads on the disclosure of Dower et al. (See section 11 of the Office action mailed 9/14/2000).

6. Regarding the rejection of claims 24 and 28 under 35 U.S.C. §103(a) over Dower et al. in view of Matson et al. the response argues that Matson et al. do not disclose an array of microparticles used in the Matson et al.'s applicator. But Matson et al. disclose that the DNA can be synthesized on a glass slide (See column 1, lines 28-29). The array of microparticle would have been lay on the solid support material of Matson et al. by an ordinary skill in the art at the

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time of the instant invention to synthesize polynucleotide because there is no big difference between using microparticle and glass slide to synthesize DNA. Thus, the rejection is maintained.

7. Claims 24 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dower et al. (5,708,153) in view of Matson et al. (5,429,807).

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

9. Any inquiries concerning this communication or earlier communications from the examiner should be directed to Joyce Tung whose telephone number is (703) 305-7112. The examiner can normally be reached on Monday-Friday from 8:00 AM-4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jones can be reached at (703) 308-1152.

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Any inquiries of a general nature or relating to the status of this application should be directed to the Chemical/Matrix receptionist whose telephone number is (703) 308-0196.

10. Papers related to this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to Art Unit 1656 via the PTO Fax Center located in Crystal Mall 1 using (703) 305-3014 or 308-4242. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989).

Joyce Tung

June 6, 2001

A handwritten signature in cursive script that reads "Eggerton A. Campbell". The signature is written in black ink and is positioned above the printed name and title.

**EGGERTON A. CAMPBELL
PRIMARY EXAMINER**

NOTICE TO COMPLY WITH REQUIREMENTS FOR PATENT APPLICATIONS CONTAINING NUCLEOTIDE SEQUENCE AND/OR AMINO ACID SEQUENCE DISCLOSURES

The nucleotide and/or amino acid sequence disclosure contained in this application does not comply with the requirements for such a disclosure as set forth in 37 C.F.R. 1.821 - 1.825 for the following reason(s)

- ☒ 1. This application clearly fails to comply with the requirements of 37 C.F.R. 1.821-1.825. Applicant's attention is directed to these regulations, published at 1114 OG 29, May 15, 1990 and at 55 FR 18230, May 1, 1990.
- ☐ 2. This application does not contain, as a separate part of the disclosure on paper copy, a "Sequence Listing" as required by 37 C.F.R. 1.821(c).
- ☐ 3. A copy of the "Sequence Listing" in computer readable form has not been submitted as required by 37 C.F.R. 1.821(e).
- ☐ 4. A copy of the "Sequence Listing" in computer readable form has been submitted. However, the content of the computer readable form does not comply with the requirements of 37 C.F.R. 1.822 and/or 1.823, as indicated on the attached copy of the marked -up "Raw Sequence Listing."
- ☐ 5. The computer readable form that has been filed with this application has been found to be damaged and/or unreadable as indicated on the attached CRF Diskette Problem Report. A Substitute computer readable form must be submitted as required by 37 C.F.R. 1.825(d).
- ☐ 6. The paper copy of the "Sequence Listing" is not the same as the computer readable form of the "Sequence Listing" as required by 37 C.F.R. 1.821(e).
- ☒ 7. Other: please see the attached Error Report

Applicant Must Provide:

- ☒ An initial or substitute computer readable form (CRF) copy of the "Sequence Listing".
- ☒ An initial or substitute paper copy of the "Sequence Listing", as well as an amendment directing its entry into the specification.
- ☒ A statement that the content of the paper and computer readable copies are the same and, where applicable, include no new matter, as required by 37 C.F.R. 1.821(e) or 1.821(f) or 1.821(g) or 1.825(b) or 1.825(d).

For questions regarding compliance to these requirements, please contact:

For Rules Interpretation, call (703) 308-4216

For CRF Submission Help, call (703) 308-4212

For PatentIn software help, call (703) 308-6856

PLEASE RETURN A COPY OF THIS NOTICE WITH YOUR RESPONSE